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SURGICAL CASES, FROM THE RECORDS OF THE CITY HOSPITAL, BOSTON.

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First Paper.—FIVE CASES OF CONSERVATIVE SURGERY OF THE UPPER EXTREMITY.

CASE I.—*Severe Laceration of the Hand; Recovery.*—(Under the care of Dr. Cheever.)—May 1st, 1865. F. A. R., æt. 22, while at his work in a mechanical bakery had his hand drawn in between two smooth rollers, used for rolling out crackers. A large, V-shaped, lacerated wound on the palmar side had torn off all the integuments of the palm, down to the palmar fascia, and crushed and carried away the muscles of the thenar region, comprising all the shorter muscles of the thumb. The palmar fascia was, fortunately, not opened. On the dorsum, the whole skin was lifted up from its cellular attachments, but not torn away; so that the finger being entered under the skin at the edge of the palmar wound, could be swept over the whole back of the hand, from the wrist to the commissures of the fingers, between the skin and the tendons, as if beneath a glove. There was no injury of bones, tendons, vessels or nerves.

Here, then, we had a severe lacerated wound of the soft parts, not implicating the deeper structures. How far the future usefulness of the hand might be impaired by the gluing together of the skin and subjacent structures seemed quite doubtful.

The ragged muscles were trimmed up, the edges of the palmar wound were brought nearer together over the palmar fascia, whose surface was cleanly dissected off by the injury. Four long counter openings were made through the loosened skin, in front and behind, to prevent the bagging of pus. The hand was placed on its ulnar edge in a tin gutter, and secured by adhesive straps, and the whole kept constantly moist with water.

May 3d, suppuration had begun, a slight blush extending up the forearm. He was ordered ʒ iij. tinct. ferri. chlor. daily. In five days more the condition had much improved. The stitches were all away, a slough had separated near the thumb, and a little still remained; suppuration not excessive. At the end of a fortnight, his wounds were strapped daily with adhesive plaster. There was but little discharge from the counter-openings, and the skin on the dorsum was becoming adherent.

One month after the injury he was discharged, nearly well. A granulating wound, two inches long and three fourths of an inch wide, alone remained in the palm. Six weeks later he was seen again, when everything had closed. The motions of the fingers, both flexion and extension, were excellent, the thumb only being impaired by the destruction of its short muscles. He was again at work at his trade.

This case seems worth reporting, not for the depth, but for the extent of the injury, and the perfect recovery. It seems fair to conclude that the integrity of the palmar fascia saved the flexor tendons of the palm from adhesive inflammation; while on the dorsum, the separation of the skin from its cellular attachments must have taken place without denuding the extensor tendons to any great extent.

Case II.—*Compound, Complicated Fracture of Radius and Ulna; Recovery.*—(Under the care of Dr. Cheever.)—June 2d, 1865. Edmund C., æt. 31, while at work, had his right arm drawn into a leather-slitting machine, twisting it, and fracturing both bones of the fore-arm. The fracture occurred at the junction of the lower and middle third of the fore-arm, and both bones were driven through the soft parts and skin, producing two lacerated wounds on the dorsal side, the upper fragments projecting some inch and a half, divested of periosteum. The soft parts on the front of the arm were red and bruised as high as the elbow, but the vessels were uninjured. The patient looked like a young man of good constitution and temperate habits, and although there was considerable reason to fear a slough of the bruised tissues, it was decided to try to save the arm. The wounds were enlarged, some splintered fragments removed, the periosteum was stripped back from the upper fragments of both radius and ulna, and two inches sawed off with the chain saw. They were then gently returned to their places. The ends of the lower fragments were snugly bedded in the soft parts, and although the fractured surfaces were rough, the periosteum could not be much displaced, and they were left alone, since it was thought that they could not give rise to more irritation than in a simple fracture, provided the arm were kept at rest. The whole limb was now placed in a tin gutter splint, with holes for the discharges, and gently supported by a few adhesive straps. No bandaging or close apparatus was used throughout the case, but it was left as much open as possible, in order that it might be seen, and be kept cool, and unrestrained by constricting bands. It was loosely covered with a moist cloth. One third of a grain of morphia was given during the night. The next day, the pulse was 60. In three days more there was free, healthy suppuration. A great ecchymosis of the palmar side of the forearm. Pain reported diminishing. Ten days after the injury he was up and about the ward, with a very moderate discharge. In three weeks he went home for forty-eight hours. In six weeks from the receipt of the injury the external wounds had entirely closed, and the case was reduced to a simple fracture. A very large effusion of callus had taken place around the seat of fracture, and entire recovery was a question of only a few weeks. He was therefore discharged, and directed to report weekly.

The early closure of these wounds must be ascribed to the power of vital resistance in the patient. But the large callus, and the escape without necrosis, would seem to be due to the preservation of the periosteum.

Case III.—*Extensive Laceration of the Hand by the explosion of a Pistol; Recovery.*—(Under the care of Dr. Cheever.)—Daniel S., æt. 14, while attempting to fire off a pistol, on the 4th of July, holding the barrel in his left hand and pulling the trigger with his right, it burst, and lacerated the left hand. The fore-finger, fractured close to its articulation with the metacarpal bone, was left hanging by only one tendon. The metacarpal bone was stripped of soft parts and periosteum nearly its whole length. There was a very considerable loss of skin and soft tissues, and they were blown full of powder. The middle finger was torn near the tip. The thumb had sustained what almost seemed an irreparable injury. The ball of the thumb and the thenar muscles were torn up, so that the articulation of the metacarpal bone with the trapezium was entirely exposed. This joint was not only opened, but its synovial capsule was wholly gone. The articulating surfaces were entirely apart, as if separated by the knife, and laid clean and bare in full view. The tendon of the flexor longus pollicis was denuded also for an inch and a half. The extensor tendons (ossis metacarpi, primi et secundi internodii pollicis) were uninjured. So were the dorsales pollicis arteries and the branches of the radial nerve. The radial artery and two smaller branches were tied. The skin on the dorsum was untouched. The whole thumb was attached to the hand only by the tendon of the flexor longus, the extensor tendons, and integuments and soft parts on the dorsum and part of the side. On these it could be freely hinged back, so that it lay upon the back of the hand, the nail pointing towards the wrist. The injured parts around the thumb were fortunately free from powder, and were clean and dry. As the thumb may be justly regarded as of more consequence than several fingers, the question suggested itself at once, whether there was any hope of saving it. In view of the youth of the patient and the great recuperative powers of Nature at that age, and considering also that it would be a trifling matter to remove it at any later period should it become necessary, it was decided to make the attempt.

The fore-finger and nearly the whole of its metacarpal bone were removed. The ragged soft parts were trimmed up. The thumb was laid back in its place, and retained by adhesive straps passing round the hand. Several sutures were put in, but the wound could not be brought together with integument but a limited part of its extent. A cold-water dressing was applied, and the whole supported in a tin splint. The patient slept the second night without an opiate; the hand looking well.

July 9th.—Very little suppuration. Sutures removed, and all ligatures except radial one. Wound looks well; healthy granulations beginning. Thumb held firmly in place by daily dressings with adhesive plaster. Cold-water dressing continued. In three weeks there was moderate union, and a little motion of the thumb by the long flexor tendon. The whole wound granulating healthily. In six weeks the wounds were nearly healed. the thumb was soundly approximated to the metacarpal bone of the second finger, and its motion was very considerable. The preservation of a useful member was no longer a matter of doubt.

Sept. 4th.—Two months after injury. Hand in excellent condition, good motion being attained.

CASE IV.—*Crushing, with Laceration of Right Hand, by Piledriver; Recovery.*—(Under the care of Dr. Buckingham.)—March 7th, 1865. Alex. McQ., æt. 23, while at his work driving piles, the pile-hammer, weighing seventeen hundred pounds, fell a distance of one foot, catching his hand between it and the pile, the shock being somewhat averted by the block on top of the pile. Hand considerably swollen; fingers warm; a deep wound on the inner side of thumb, running back towards the wrist, and laying bare the first and second phalangeal articulations of the thumb, but not opening the joints; fracture of second phalanx; deep ragged wound in palm; skin torn off from one half the surface of the back of the hand and the index finger; all the soft parts badly bruised; profuse hæmorrhage from wound of thumb; no arterial jet. Bleeding checked by cold. Pain intense. Laudanum, p. r. n. Hæmorrhage recurring in the night, pressure over the radial and ulnar failing to arrest it, a tourniquet was applied to the brachial.

March 8th.—Hand swollen and livid. No bleeding. Dressings and tourniquet removed. Etherized, and hand examined. Bandages re-applied, and hand kept raised, with elbow bent.

9th.—Fair night. No bleeding. Swelling increasing. Three long incisions made on dorsum of hand. Tissues infiltrated with effused blood.

11th.—Another incision required. Palmar wound sloughing. Constitutional state good. Dressings removed; hand to be treated by exposure to the air alone.

12th and 13th.—Patient sitting up, and appetite better. Small collection of pus let out over thumb.

14th.—Commencing to suppurate more freely. No dressings, to great surprise of patient.

17th.—Extensive sloughing of back of hand, and some of palm. First phalangeal joint of thumb opened. Appetite not so good. Wounds dressed with creasote ointment.

20th.—Beginning to granulate. Compressed with broad adhesive straps to prevent burrowing of pus. Ordered extra diet and ale.

24th.—A large amount of slough removed. Strapping continued.

29th.—Doing well. Wound contracting and granulating.

April 8th.—Improving, under strapping.

12th.—Abscess opened over metacarpal bone of thumb.

20th.—Doing well. Last phalanx of fore-finger removed, as it was quite loose.

30th.—Loose bone removed from tip of thumb.

May 18th.—Strapping omitted. Fingers reduced in size; begins to flex them. Thumb healed. Wound on dorsum only three fourths of an inch wide. Ulceration, as if from necrosis, at end of fore-finger.

May 29th.—End of fore-finger slit open, but no dead bone found.

June 5th.—All sores nearly healed. Discharged, after three months' treatment.

The hand remains considerably swollen and infiltrated. The thumb a little shortened by loss of bone. Flexion moderate, but improving. There seems just cause to believe that by the end of a year the hand will have become a very useful one. Certainly, none of its essential functions are irreparably impaired.

Case V.—*Compound Fracture of Fore-arm, with extensive Laceration; Recovery.*—(Under the care of Dr. Buckingham.)—Jan. 24th, 1865. Bernard McI., æt. 52, a moderate drinker. This morning got his right arm caught in a gearing, producing a compound, comminuted fracture of the ulna in its lower half. Integuments torn off the greater part of the palmar aspect of fore-arm, from wrist to within two inches of elbow, exposing and badly lacerating the flexor muscles. Skin on dorsal aspect uninjured. Radial pulse good. Can flex his fingers. But little blood lost. Treated until following day by bandaging and opiates.

Dr. Buckingham determined to attempt to save the arm; and the patient having been carried into the amphitheatre, he stated the *pros* and *cons* to the medical class. The age and habits of the patient were against him, and the injury was a bad one. On the other hand, the hand was warm and the pulse good; the patient was poor, with a large family, and he proposed to remove the injured portions of the ulna, and to try to preserve a useful hand, with the radius alone. By a slow and careful dissection, the periosteum was removed from the ulna, and its broken fragments extracted. The periosteum was stripped off from the upper fragment, and the bone smoothly divided with a chain saw. The lower articular end of the ulna was also dissected out. Nearly one half the shaft was removed. There was but trifling hæmorrhage. Cold-water dressing applied. In the afternoon, dressings were removed, the elbow flexed, the hand raised, and the back of the arm fastened to a pillow and cradle. In this position it was very comfortable, and all pressure on the wound avoided. From this time until March 7th, *about six weeks, the arm was treated without any dressing whatever, and freely exposed to the air.*

Jan. 27th.—Pulse 72. Tongue clean. Sleeps well. A large exudation of serum and lymph is coating over the wound.

30th.—A moderate amount of sloughing. Pulse 92. Delirious in night. Diet increased—beef-steak and ale.

Feb. 2d.—Pulse 68. Sloughing better. Wound covered with a brown scab of dried pus, painless, inodorous. Slough and scab, in separating a little, caused a giving way of the ulnar artery, which required a ligature.

5th.—Wound looks remarkably well; granulating around edges.

8th.—Position becoming irksome. Warm-water dressing for twenty-four hours, to remove scab, in order to apply a splint.

15th.—Fore-arm drying up nicely.

19th.—Still a little sloughing among the tendons.

21st.—Arm put on a straight splint.

23d.—Pain and swelling. Splint removed.

27th.—Confinement beginning to tell on general health. Much pain along course of ulnar nerve.

March 6th.—Appearances of necrosed bone over lower end of radius. Wound contracting. Some burrowing of pus, treated by pressure with roller.

13th.—Strapped with adhesive, daily, and bandaged, henceforward.

16th.—Sitting up and walking about, with arm on a pillow.

27th.—Suppuration much less. Wound contracting. Swelling subsiding. Doing well.

April 27th.—Constant improvement. Granulations too exuberant; treated with alum and strapping.

May 27th.—Allowed to go home for a week. Every way improved.

June 22d.—Five months under treatment. Discharged. Wounds nearly closed. To return weekly for inspection.

July 10th.—Seen to-day. Wound closed, except two spots the size of a five-cent piece. Swelling of hand subsiding. Rotation of radius quite good. Fingers can be moved by passive motion; hitherto they have been let alone, because motion tore open the cicatrix. To begin to use them now. Every reason to anticipate a very good hand.

REPORT UPON THE EPIDEMIC OCCURRING AT "MAPLEWOOD YOUNG LADIES' INSTITUTE," PITTSFIELD, MASS., IN JULY AND AUGUST, 1864.

By Drs. A. B. Palmer, C. L. Ford and Pliny Earle.

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The committee have received both written and oral statements of the offensive odors from the drains, perceived upon the streets.

Some of those rooming in the west building complained of the heat, the steam and the odor which came from the laundry and penetrated the apartments.

Though some of the dormitories were small for the number occupying them, and were not provided with any special or artificial means of ventilation, yet they were as they had been in previous seasons of health, and during the summer time could have been kept absolutely closed only a moderate portion of the time. Compared with other similar institutions, the crowding was not excessive.

The foliage about the buildings from shade trees and vines covering the verandas was considered by the committee as being in some cases excessive, and, as before stated, they recommended that a portion of it should be removed.

Bathing-rooms and tubs were provided in the building, though many did not use them, preferring to practise such ablutions as they could in their own rooms. We have no evidence that imperfections of the bathing apartments, if they existed, had anything to do with the sickness of the pupils.

Though the discipline of the school was strict, and the requirements for intellectual labor and application were not light, they did not differ from those of former years; were much like those of other schools of a similar character, and could scarcely be regarded as excessive.

The exercises of the gymnasium were taken for half an hour immediately before dinner four times per week, with no period of rest between such exercises and the forenoon of study and recitations; and some thought that their appetite and digestion were impaired by this; but the practice was the same as during previous years of freedom from fever, and we are unable to say that it had anything to do with the sickness.

To the subject of the diet of the institution, the committee, as was their duty, gave careful attention, but the facts their investigations elicited would not justify the statement that deficient or improper alimentation acted as a cause of the sickness.

Maplewood is supplied with water, as is the rest of the village, from a mountain lake through the hydraulic works, and during the hot weather ice was used in that for drinking. For some days in July the supply from this source was scanty, and these grounds being higher than most of the village, there was a failure of the hydraulic water at the Institute. Water for cooking and drinking purposes was brought during this interval from a neighboring well—the same as used by several other families without injury or complaint; but the water for washing was supplied to the rooms from cisterns on the premises, which had long been unused, and complaints were made of its unpleasant odor. These complaints, however, were by no means general, and the committee have not sufficient facts to justify them in concluding that the water was in any way a cause of disease. The condition of this cistern water did not fail, however, to attract attention. It may be proper to state that one pupil, and one only, complained that, for a short time, the drinking water was not good.

Pleasure excursions were not unfrequently taken, by the pupils, about the neighboring country, in vehicles kept at the establishment for that purpose, and other proper recreations were allowed; and the pupils generally expressed themselves as having been treated with much kindness by the Principal and the teachers.

These the committee regard as all the material facts of a strictly local character having any important bearing upon the health of the inmates.

Which of these could have acted either as predisposing, exciting, or collateral causes of the deplorable results that have occurred?

To solve this question it will be necessary, first, to establish the character of the disease; then, to present, from the most reliable medical authorities, the causes of such form of disease; and, afterwards, to compare the facts in the case in hand with the authorities and established principles bearing upon it.

That the disease, in the mass of cases, was typhoid fever, or abdominal typhus, or, as called by Dr. Murchison and others, "pythogenic fever," there can be no doubt.

The committee all saw some of the cases, and one of this number attended several of them through their protracted course; and although no opportunity was presented to them for verifying the diagnosis by *post-mortem* examinations, and they are not aware of such having been made in any of the cases, yet the symptoms, though varied and in some cases peculiar, were so unequivocal as to cause fifty-six cases to be pronounced typhoid fever by quite as many different physicians, without any previous concert or understanding. In some of the cases there may have been, and indeed there appeared to have been, a malarious element, and following a present custom, such might have been styled "typho-malarial"; but the whole history of the disease showed the typhoid to be the *predominant* element—the essential characteristic—and, without lengthening the report by entering into details of proof, the fact that the disease, whatever complications might have existed, was essentially typhoid fever, may be regarded as established.

It would be impossible to bring this report within reasonable limits, were we to discuss fully the various questions connected with the origin and propagation of typhoid fever. Although various theoretical views are held as to whether the poison producing the disease is generated in the bodies of the sick, and communicated from them to the well, or whether it is generated in sources exterior to the bodies of fever patients, yet all authorities maintain that a peculiar poison is concerned in its production.

Those who hold to the doctrine of contagion admit that, to give such contagion efficacy in the production of wide-spread results, filth or decaying organic matter is essential; while those who sustain the theory of non-contagion—the production of the poison from sources without the bodies of the sick—contend that it has its entire origin in such filth—in decomposing matter, especially in fermenting sewerage and decaying human excreta.

The injurious influence of decomposing azotised matter, in either predisposing to or exciting severe disease, and particularly typhoid fever, is universally admitted among high medical authorities. The views of Dr. Carpenter on this subject are too well known to medical men to need full elaboration. His doctrine, so clearly stated and so amply illustrated by facts, is that decomposing materials in the system, whether generated and retained there or taken in from without, either in water or food contaminated with foul matters, as sewerage, &c., or in the air by night-soil and sewerage emanations, either themselves produce disease or serve as the nidus for the operation of specific or zymotic poisons, such poisons as produce fevers, cholera, diarrhœa, dysentery and the like.

After giving many other cases showing the effect of foul emanations in the production of fever, cholera, &c., Dr. Carpenter says:—

"The following case may be added in proof of the potency of an atmosphere charged with putrescent emanations in rendering the system liable to the attacks of zymotic diseases of various kinds.

"A manufactory of artificial manure formerly existed immediately opposite Christ Church workhouse, Spitalfields, which building was occupied by about 400 children, with a few adult persons. Whenever the works were actively carried on, particularly when the wind blew in the direction of the house, there were produced numerous cases of fever of an intractable and typhoid character; a typhoid tendency was also observed in measles, smallpox, and other infantile diseases, and for some time there prevailed a most unmanageable and fatal form of aphthæ of the mouth, ending in gangrene." Many deaths occurred.

"The proprietor of the manufactory was compelled to close his establishment, and the children returned to their ordinary health.

"Five months afterwards, the works were recommenced. In a day or two subsequently, the wind blowing from the manufactory, a most powerful stench pervaded the building. The night following, 45 of the boys, whose dormitories directly faced the manufactory, were again suddenly seized with diarrhœa; whilst the girls, whose dormitories were in a more distant part, and faced in a different direction, escaped.

"The manufactory having been again suppressed, there was no subsequent return of diarrhœa."

Dr. Williams, whose Principles of Medicine are in the hands of so many, in speaking of these sources of filth and foul air, says:—

"The soil which drains from habitations contains, in addition to excrement, dirty water, the washings and remnants of animal and vegetable matter used as food, and other offal. All these are mixed together and stagnant in the corrupting slough that is retained in cess-pools and privies, or that is carried into sewers. Every ill-drained house has a Pandora's box ready to pour forth its evils when occasion offers, and always oozing them out in degrees sufficient for the impairment of health.

"These materials continually poison both air and water; and typhoid fever, diarrhœa, cholera, dysentery, dyspepsia, inappetency, general weakness and mal-nutrition are the results of their pestiferous operation acting in different degrees."

Dr. Stramm, of Berlin, Germany, who has given many years of his life to the study of epidemic diseases in different parts of the world, believes in the possibility of annihilating nearly all such diseases by proper attention to cleanliness and other hygienic measures. He says: "Before erecting statues, building museums, and buying expensive pictures, towns should be relieved of bad odors and fermenting putrescence;" and adds, "that good privies are far higher signs of civilization than grand palaces and museums of art." Among many other facts enforcing his views, he mentions that in certain wards of the Vienna General Hospital there was an epidemic of fever in the winter of 1862–63. In the wards on the second floor the disease prevailed by far the most extensively, and it was found that the pipes for the escape of gases from the cess-pools opened just above that floor in a garret which was quite closed. On proper ventilation the disease soon ceased.

From numerous instances, ancient and modern, Dr. Stramm concludes that wherever there is a bad odor there is, as a rule, *materies morbi;* and that when there are bad conditioned water-closets and cess-pools, poison will penetrate into dwellings, and when this is the case to the requisite extent, epidemics inevitably follow. He says that when the capital of Egypt was moved from Thebes to Memphis—from the upper country to the marshy lowlands, where proper drainage was impracticable, and where the infection of the air was carried on in an almost systematic manner—the empire gradually declined; and he quotes Baron Liebig in ascribing to the bad system of sewerage adopted at its capital, the fall of the Roman Empire.

Dr. E. D. Mapother, Professor of Hygiene, and Medical Officer of Health of the city of Dublin, says:—"Typhoid fever is about the most preventible of diseases, yet of this affection 140,000 cases occur, and at least 20,000 young persons, including many of the flower of the people, die every year in England." He attributes it to foul emanations, and says there is much greater risk of the disease being communicated from the decomposition of materials and the production of poison in faulty sewers, than from the atmosphere about patients; and urges the use of disinfectants, and improvements in the condition of sewers and privies as the preventives of this disease "born of putrescence."

One of the latest and perhaps the highest authority on this subject—Dr. Chas. Murchison, of the London Fever Hospital—has applied the term "pythogenic" (literally, "born of putridity") to typhoid fever; and so strong is the conviction as to the particular form of decaying matter most frequently producing it, that the name of "night-soil fever" has been given to it.

It is regarded by Murchison and others as an endemic disease—that is, as a disease belonging to, and consequently generated in, *localities*. It occurs more frequently, especially in New England, during the autumn, and it is often unusually prevalent after summers remarkable for their dryness and high temperature.

It is more likely to occur in youth and adolescence than in later periods of life, and is not so particularly increased as is typhus fever by intemperance, fatigue, overcrowding and deficient ventilation, or by poverty and deficiency of food—though all of these have some effect in predisposing to it.

The question whether typhoid fever is ever properly contagious, that is, whether the poison producing it is generated in the bodies of those sick with the disease and communicated to others, producing the like affection in them, has long been discussed, but is not yet fully settled. It is always difficult to say whether a disease is communicated by contagion from one person to another, or not, when both have lived in the same place and been subjected to the same general influences. Andral, perhaps the most accurate of French observers, declared that he had not seen typhoid fever exhibit the slightest contagious character; and Chomel stated that not more than one in a hundred, in France, where this has long been the prevailing fever, believed it to be contagious.

At the present time, professional opinion in France is more divided. Trousseau, whose authority is very high, regards it as probably contagious; but only so under peculiar circumstances—under certain special conditions, while he admits that many facts seem to point in the other direction. Lebert, one of the most recent and highest among German authorities, says that, within his large field of observation, he has found the abdominal typhus (typhoid) very little contagious; at all events, incomparably less so than the exanthematic, or English typhus proper; and less contagious in endemic cases than in wide-spread epidemics. He finds, especially, that whilst smallpox and typhoid patients are in the same hospital, every year, the typhoid convalescents take the smallpox, but the smallpox patients do not take the typhoid. He regards putrid and mephitic emanations as among the causes which have a decided influence in the production of the disease, and says:—"That local emanations from the earth, local injurious substances eluding our search, have not seldom a share in producing the disease, is proved by the fact that, sometimes, local causes of many years' standing cease to develope their injurious properties through hygienic improvements." He says, again:—"Too exhausting labor, together with poor dwellings and insufficient food, renders the system more susceptible."

Professional opinion in England and in this country is divided. Very few, however, hold that the disease is chiefly propagated by contagion. A very large portion contend that it is often generated spontaneously, or independently of the sick; and it has long been held, in a vague way, to be produced by poisons developed chiefly by animal decomposition, as malarial fevers so evidently are from changes in vegetable matter.

In this country, particularly, where the disease so frequently breaks out in a scattered population, where there is no possibility of contagion, nearly all believe that it is generated *de novo;* and it is inferred that if this is so in some cases, it is likely to be so in all; as, very generally, when the disease occurs in one person, after another has had it in the same locality, both have been subjected to the same external influences, and may therefore have been affected by the same causes, one being affected only later than the other. Although almost universally held not to be generally produced by contagion, yet the spontaneous origin of typhoid fever has been regarded, until within not many years past, as involved in obscurity—its particular procuring cause having been looked upon as vague and uncertain. Emanations from sewerage and putrefying animal matters have long been considered causes of fevers, as has been seen; but it was reserved for Dr. Murchison to show, by a large collection of facts, that fevers produced by such emanations are always typhoid, and not typhus, and that such emanations are the common causes of such fevers. A few of the many facts upon which he based his conclusions may here be presented, some of them in a condensed form, as throwing light upon the questions which the committee have undertaken to investigate.

In August, 1829, of 22 boys in a school at Clapham, England, 20 were seized, within three hours, with fever, vomiting, purging and excessive prostration. One other boy had been seized with similar symptoms two days before, and died comatose, in 23 hours; another boy died in 55 hours, and the rest recovered. A careful investigation could detect no other cause than the opening and cleaning out of a drain which had been choked up many years, and which, when opened, emitted an offensive odor. This drain was at the back of the house where the boys were, and its opening was watched by them.

Its contents were spread upon their play-ground. The symptoms and *post-mortem* appearances were those of typhoid fever.

In 1838, a circumscribed typhoid fever broke out in Birmingham, England. About 50 cases occurred in the immediate neighborhood of a small stream, which was nothing more than an open sewer. The preceding season had been very hot, so that the stream was nearly dried up, and in some places almost stagnant. It disengaged extremely fœtid odors, especially during the night, which were complained of by the inhabitants.

In the same year typhoid fever prevailed in the Commune of Prades, in the Department of Ariège, France. Of 750 inhabitants, 310 were attacked and 95 died. The cause was traced to a stagnant pool, which was the receptacle of dead animals and of all the sewerage of the district. The outbreak was preceded by damp, warm weather. Three times the pestilence returned, and always when the wind was blowing over the infected water.

Another circumscribed outbreak of this same fever occurred in an isolated farm-house in the thinly peopled county of Peebles, N. B., in 1846, as recorded by Dr. Christison. Every one of the fifteen residents was seized with the fever, and three died. Many of the servants who worked on the farm during the day were also affected, but none communicated the disease to their families, who did not visit the farm. The cause was traced to the drains and sewers, all of which were found closed up and obstructed by the accumulated filth proceeding from the privies and the farm-yard, the effluvia from which was very offensive.

About Easter, 1848, a formidable outbreak of this fever occurred in the Westminster School and the Abbey Cloisters, in London. It produced a perfect panic in the neighborhood, particularly because of its central situation and because it affected "the better classes." Within a little more than eleven days it attacked thirty-six persons, three of whom died; and though so many less were affected and died in this case than at Maplewood, a large portion of the people of London, and indeed of England, were agitated by the event, and it has become classical under the name of the "Westminster fever." Shortly before its appearance there were a few days of peculiarly hot weather, and a disagreeable stench was complained of in the houses in question. It was found that the disease followed very exactly, in its course, the line of a foul and neglected sewer in which fæcal matter had been accumulating for years, without proper exit, and which communicated by direct openings with the drains of all the buildings in which the fever occurred. The only exception was in the case of some boys living in a house at a little distance from those in which the drains opened; but they were in the habit of playing, every day, in a yard in which were gully-holes opening into the foul drain.

This case was minutely inquired into by the most eminent physicians of London, and the Metropolitan Sanitary Commission gave it as their decided opinion that the epidemic arose from the bad state of the sewers and drains of the precinct, and especially from the foul condition of the large sewer described.

In the autumn of 1852 a typhoid fever broke out in Croydon, England; and of a population of 16,000, 1800 were attacked and 60 died. The report of eminent medical men to the Secretary of State of England, who took official cognizance of the affair, showed that the escape of sewer miasm, through imperfections in the sewerage drain-pipes, had been influential in producing the epidemic.

In November, 1853, in Cowbridge, Wales, an outbreak of typhoid fever suddenly occurred, under very peculiar circumstances. Two balls had been held at the hotel of the town, and were attended by about 140 persons from all parts of the surrounding country; and, shortly after, at their homes, many of these persons were attacked, and none others, and eight died. Poison in the food or drink was suspected; but the persons were attacked too long after the event for this supposition; and an investigation revealed the fact that a foul privy was in a passage leading from the house to a stable, and the loft over the stable had been used as a supper-room at the ball.

The local origin of the disease was here completely proved; though the emanations from the privy as the cause was not so completely demonstrated. Some condition about the stable may have contributed to the result.

In the autumn of 1857 enteric fever broke out in Fleet Lane, London, while a sewer was being constructed. The sewer was open from June 29th to October 30th, and, during all this time, the inhabitants complained of the offensive smell. Soon after the sewer was opened diarrhœa began to appear, and enteric fever followed. Of 140 families in the lane, hardly one escaped. Those who investigated the subject attributed the fever to sewer miasms. It appeared soon after the sewer was opened: it disappeared when the sewer was closed; and, during the whole of the time, it was confined to the lane and its immediate neighborhood.

In the fall of 1858 an epidemic of typhoid fever prevailed at Windsor, England. As occurring in the immediate neighborhood of one of the royal residences, Windsor Castle, it was made a subject of special inquiry by the Medical Officer of the Privy Council. Within four months 440 persons—about one twentieth of the whole population—were attacked, and 39 died.

The disease seized rich and poor alike, and the cause seemed clearly to be traced to the escape of sewer gases, through defects in the drain, into the residences of the people attacked. There was a separate sewer for the Castle, which was kept in good condition, and no case of fever occurred there. Places only a street apart, but supplied, respectively, from the defective town-drain, and the perfect Castle-drain, in the one case suffered severely, and in the other escaped entirely.

Foreign cases of this kind which have found places in the books and journals, showing the influence of foul emanations in causing typhoid fever, might be multiplied; but these, abstracted and condensed, as already intimated, from Dr. Murchison's recent and almost exhaustive treatise on the Continued Fevers of Great Britain, will suffice.

[To be continued.]

THE BOSTON MEDICAL AND SURGICAL JOURNAL.

BOSTON: THURSDAY, SEPTEMBER 21, 1865.

DISEASE A PART OF THE PLAN OF CREATION.*—Such is the somewhat startling title of the address by Dr. Cotting, read before the Massachusetts Medical Society at its last annual meeting. It is an address calculated to draw forth the most opposite opinions from the medical profession, according to their original mental constitutions and habits of thought—to be regarded by one class as the extreme of professional heresy and scepticism, and the very essence of medical philosophy by the other. Especially must this be true of those who formed their opinions of the discourse as it was delivered, the great weight of argument and illustration being, singularly enough, presented in the numerous notes, which constituted no part of the address as originally read. Startling as is the heading of this discourse, however, we think that the shock will be very much diminished to the reader who gives it a candid and careful perusal from beginning to end.

Dr. Cotting opens his essay with a distinct recognition of the odium which he runs the risk of incurring in certain minds by the position which he assumes, frankly declaring his willingness to meet the consequences which any faithful searcher after truth is liable to bring upon himself in a world so much given to routine as ours. He calmly confronts the stigma of heresy and the frowns of men of opposite views, in the hope that, thrown out in the capacity of a picket, while he incurs the peculiar dangers of such an adventurous position, he may do some special service to the cause of truth, and by his solitary shot bring down some single resisting error. Taking this stand, he proceeds at once to grapple with the great question of the origin of disease, so closely allied to that other great question which has exercised the minds of religious men for so many centuries, of the origin of evil, especially of moral evil. He naturally meets at the outset the popular idea that any departure from a condition of health is due to the infraction of some fixed law of health. The truth of this view he at once disputes, and opposes it with the parallel instance, as he considers it, taken from the New Testament—where the Savior replies to the inquiry, "Did this man sin, or his parents, that he was born blind?" "Neither hath this man sinned nor his parents, but that the works of God should be made manifest in him." As in this case he claims that sickness in general is not the result of disobedience to the divine law, but constitutes a distinct part of the plan of creation from the beginning, and is the result of the operation of divine law.

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* Medical Communications of the Massachusetts Medical Society, Vol. X., No. V., 1865.

On taking up such a discussion, one sees at once branching off in different directions some of the most abstruse and difficult questions which have exercised and which still exercise the ingenuity and wisdom of thoughtful men. The immense questions of the relation of the Deity to the Universe, whether as the original author of all things created, subjected at their creation to immutable laws which govern and will continue to govern all the events of time until the end—whether the steady operation of these laws is ever interrupted by the direct interposition of the Almighty, or special providences—or whether He always acts, at all times, by immediate agency, personally, and by no second cause. These are most solemn and momentous questions, belonging rather to the domain of theology, and we shall not presume to discuss them here; but it will be readily seen how closely the settlement of the question started by Dr. Cotting is related to these grave inquiries.

To establish his point, Dr. Cotting goes back to the earliest geologic ages for evidence. In the pathological museums of the fossil-bearing rocks, the records there preserved of restored injuries to the bones of the pre-Adamite denizens of our sphere, of caries and necrosis, of marks of extensive laceration recovered from, he finds irrefragable proof that life, in its widest sense, has always been exposed to casualties and disease, long before man, with his moral and intellectual responsibilities, was created. There is but one step in the argument from these facts to the conclusion, that their existence must have been a part of the plan of creation—it being, of course, taken for granted that there *is* a plan of creation. So, also, he shows, from the facts of disease in the living races of animals, that no infraction of law is to be charged on the unfortunate sufferers, who are by their very nature excluded from all accountability to laws of any kind. Passing to the diseases which affect mankind, Dr. Cotting shows by numerous examples how difficult it is in many very important instances to trace the prevalence of certain diseases to any specific violation of what we consider laws of health or moral laws, or in fact to any specific cause. Take any of the epidemics which have devastated the earth; how often does it happen, he says, "that they confound all our conceptions of hygienic laws, as well as our preconceived notions of their treatment"! The fact of their prevalence under such circumstances, as well as the regularity of the phenomena which characterize any well-known disease—one of the exanthemata for instance—he regards as unmistakable evidence of design, as much so as the germination of a seed or the course of the seasons. This is further illustrated by other phenomena of disease, such as the mysterious period of incubation of many of them, the inexplicable occurrence of metastasis, the changing features of acute rheumatism, the extraordinary susceptibility of some persons to certain diseases and the equally extraordinary exemption of some from the usual consequences of exposure to others—the prevalence of certain diseases at certain seasons of the year, the geographical limits which enclose some, the unexplained variety in the type of well-known diseases as they appear from year to year, the general averages of sickness and mortality—all these are proofs "that the idea of diseases must have originated in the Creator's mind, and its development formed a part of the Plan of Creation from the beginning."

If this be true, some will say, the profession of the physician is a mere superfluity. Diseases and epidemics sweep over the earth by fixed primitive laws—what use for man to oppose his petty strength to the divine will! Nay, what mockery and impiety is it to attempt it! Better to sit with folded hands, with the Mussulman, and say There is but one God! and resign all events to the irresistible sway of an indiscriminating fatalism. But this is not Dr. Cotting's deduction from his line of reasoning. True, he recognizes the divine law, but sees in it only an added stimulus to more earnest study of its workings. A more thorough comprehension of the processes of disease when left to its own workings must give to the industrious student the greater power to guide and modify them. He does not deny that the action of the general laws of nature may be to some extent controlled by the agency of man. The common experience of everyday life shows this in a multiplicity of ways. Every step that we take overcomes the action of the force of gravity through the agency of another law, that which causes muscular contraction. So that the area of man's labor and study is by no means curtailed by the conclusions to which his arguments have brought him. Rather is it extended, requiring as a foundation of our knowledge of how much power we have to resist or modify the primal law, a complete knowledge of the exact operation of that law. Thus Dr. Cotting emphasizes the great importance of a student's learning what would be the probable issue of any complaint if allowed to follow its natural course. "But," he well adds, "how small a proportion of the profession could consistently practise their calling for a single day, were this test strictly exacted!" Nevertheless he persists that the highest standard of medical education will not be attained to until the student has this opportunity of studying pure disease, without any interference in the way of drugs. He repudiates the idea that disease is "an evil only to be expelled from the system by some other power, the *vis medicatrix*, for example," but maintains "that it is one of the attendants of life, instituted in the beginning." The corollary which he draws from all this is as follows:—

"This doctrine being accepted, the proper acquisition of our art will demand of students, in the first place, a thorough knowledge of the body in its healthy condition—its organic structure, its outward form, and its internal functions; and secondly, the investigation of the natural phenomena of disease *undisturbed by medication*, as a necessary preliminary to its proper management. It will require of them also a careful study of the operations of the mind as affecting the body, and their mutual reactions upon each other, in health as well as in disease—health and disease being parts of one great Plan, and often intricately involved in each other. In these directions medical education has been deficient, and subsequent attention in after-life remiss. Let coming students take warning from the deficiencies and failings of those who have preceded them. Let them thus, properly grounded, and not till then, proceed to study the effects of accepted remedial agents. Every step from such a base will be a true progress for themselves and their science, no disappointment or scepticism ensuing. Every advance in this way will be in the right direction—*nulla vestigia retrorsum.*"

And what thoughtful physician will have the hardihood to deny the truth of the following passage?—

"While admiring the activity in our schools, the facilities of instruction and of clinical observations at our hospitals, the zeal of societies, the energy of individuals, and all the various helps to professional advancement, now so multiplied and abundant, one cannot but regret the still prevalent tendency to recur so readily to second causes, and to impede the advancement of medical science by claiming for it more than is consistent with actual truth. The medical press, so often boasted of as the great disseminator of medical knowledge, is still too often the vehicle of false philosophy and unworthy assumptions. False facts, false reasoning, and nonsequitur conclusions fill up a large portion of periodical publications. Even the more stately volume seems incomplete without its remarkable cases selected for an object, and its infallible formulæ, which perhaps have never had a trial. An author who shall candidly relate his own experience in ordinary cases, of expectations disappointed and unsuccessful issues following the employment of reputed infallible agents (and such cases only), would richly deserve, if he did not receive, the thanks of the profession, and be indeed, 'more than armies to the common weal.'"

In all this we do not find the heresy or destructive radicalism which it seems to present to some minds. We think that much of it accords with the popular sense of the course of an established disorder. How common is it for a patient to ask, nowadays, "Dr., how long must this disease run?" And how easily do most rational people acquiesce in the announcement of the physician, even when not given in response to such an inquiry, that he can do nothing to cut short the complaint. The public at large very generally appreciate the operation of self-limitation in disease, and as a general thing, we really believe, have more confidence in the man who appears to thoroughly understand the phenomena, than one who promises great results from the action of medication.

It cannot be denied, however, notwithstanding the mass of rubbish which represents what was once thought to be truth in therapeutics, that a steady progress has been made, especially of late years, in arresting or modifying disease by the action of medical agents. One such fact is argument enough for an unlimited hope for the future. And although we may not now be able to say why Asiatic cholera has started anew from its home in the east on its western march of desolation; or why diphtheria sweeps away nearly every inmate of one dwelling, haunting the habitation for months like a destroying angel, and like that fatal messenger of heaven in the days of Moses, passing over unscathed other surrounding habitations to light with similar annihilating power on others beyond; or why an epidemic of scarlatina one season spreads terror through a whole community by its fatal ravages, and another year scarcely keeps the objects of its selection within doors, yet all this mystery is only an added stimulus to the devoted student to more thorough and patient investigation. The apprehension which any destructive epidemic now inspires can hardly exceed that which once accompanied the march of smallpox; but now, the agency of man, inspired, the devout mind would say, by higher wisdom, has disarmed it of nearly all its ancient terrors. Yellow fever, but a few years since, was regarded as one of the most dangerous of contagious diseases, and as a native of the warmer latitudes of our national domain; but now, it is known to be an exotic, non-contagious, and the experience of the past four years has shown that it can be positively excluded from our shores by quarantine and hygienic regulations. Thus we are not permitted to fold our hands in helpless idleness. The experience of the past and all the instincts of our nature compel us to inquire and experiment in the future. Only let that inquiry be thorough, patient, steady, regardful of the manifest laws of creation, and let the experimentation be intelligent, as far as possible in accordance with the operation of those laws, not spasmodic, blind, and ignorantly empirical.

We should fail to do justice to Dr. Cotting's discourse did we omit to call attention to the copious notes which follow it. As we have said, they contain the principal facts upon which his argument depends. We cannot too strongly urge upon his readers to give them the most careful examination, for they are indispensable to a proper appreciation of his reasoning and deductions. They are of great weight, and are gathered from a wide range of professional and general reading. That the author himself has some of the moral courage which he so strongly inculcates on his hearers, is evident from the facts which he gives in one of them, drawn from his own experience:—

"'Dr. Hawrowitz, Physician to Prince Constantine, told me,' said Dr. Roeser, Physician to the late King Otho, to the writer, 'that the mortality in the hospital of the old Russians at Moskowa—who consider by their faith disease as a punishment by God, and the application of medicines for that reason a sin—is not greater, if not less, than in other hospitals. They apply only cleanliness and good nourishment.'—*MS. Notes of a Visit to Athens, Greece,* 1860.

"The result thus stated agrees with our own experience. In the epidemics of 1847–8, we took care of over three hundred cases of typhus fever without administering drugs. The cases were taken indiscriminately, including those in a dying state when first seen. The result was thirty-one deaths in three hundred and seven cases. In an epidemic of scarlet fever in 1848–9, out of eighty-one cases so cared for, seventy-seven recovered. With every attention to the comfort of the sick and as thorough nursing as possible, the progress of the disease was as tolerable, its continuance as short as, and dangerous sequelæ less frequent than in other cases more 'actively treated.' In 1849, of forty cases of measles, thirty-nine recovered. The writer sometimes takes care of the more painful diseases, rheumatism for instance, without drugs. It requires greater patience and painstaking on the part of the practitioner, but the result is satisfactory. 'I had not time,' said a prominent physician the other day in the writer's hearing, 'to persuade the family that the patient did not need any medicine, so I wrote a prescription and departed.'"

And thus we take leave of this able and interesting discourse; only remarking that it ought to be regarded merely as a sketch in outline, which, from its very meagreness, will be apt in some quarters to fail of just appreciation and to be undeservedly condemned in others. The subject he has touched, if properly elaborated, might be profitably expanded to an extended treatise; a further development which we sincerely hope the author may find the time to give to the world hereafter.

Death of Prof. Timothy Childs.—We are pained to announce the death of this well-known and highly-esteemed member of our profession, at Norwich, Conn., on the 3d inst., from the effects of an excessive dose of morphine, administered by himself. Dr. Childs was a native of Pittsfield, in this State, and filled for many years an honorable place as Professor of Anatomy and Surgery in the Berkshire Medical College, and more recently as Professor of Anatomy in New York Med. College. He also served with distinction as assistant surgeon to a Massachusetts regiment in the Mexican war, and on numerous occasions acted as a volunteer after the great engagements of the recent war. He was endeared to a large circle of friends by his kindness of heart and genial disposition, and his death will be widely mourned. It is thought he was laboring under temporary insanity at the time of his death.

We learn that Dr. Horatio R. Storer, of this city, has been appointed Professor of Obstetrics in the Berkshire Medical College.

Dr. Newman stated, at a recent meeting of the New York Academy of Medicine, that within his knowledge vaccine matter from a cow had produced smallpox in the person vaccinated. He thought such cases were not raro during the recent epidemic.

The books of the Federal undertaker at Nashville, Tenn., show that he has buried, since the Federal occupation of the city, 13,681 soldiers and government employees (1000 of the latter); also 8,000 rebel soldiers, and 10,000 contrabands and refugees.

VITAL STATISTICS OF BOSTON.

For the Week ending Saturday, September 16th, 1865.

DEATHS.

	Males.	*Females.*	*Total.*
Deaths during the week - - - - - - -	48	46	94
Ave. mortality of corresponding weeks for ten years, 1853—1863,	44.5	47.3	91.8
Average corrected to increased population - - - - -	00	00	100.21
Death of persons above 90 - - - - - - - -	0		

Communications Received.—Extracts from the Records of the Providence Medical Association.

Pamphlets Received.—Tenth Annual Report of the Births, Marriages and Deaths in the city of Providence, R. I., for the year 1864. By Edwin M. Snow, M.D., Superintendent of Health and City Registrar. Second Edition.

Deaths in Boston for the week ending Saturday noon, September 16th, 94. Males, 48—Females 46. Anæmia, 1—apoplexy, 3—disease of the bowels, 1—inflammation of the bowels, 4—congestion of the brain, 1—disease of the brain, 3—inflammation of the brain, 1—burned, 1—cancer, 1—cancrum oris, 1—cholera infantum, 11—consumption, 10—convulsions, 3—croup, 1—cyanosis, 2—debility, 1—diarrhœa, 10—dropsy, 2—dropsy of the brain, 3—drowned, 1—dysentery, 1—miliary fever, 1—scarlet fever, 1—typhoid fever, 2—typhus fever, 1—hip disease, 1—disease of the liver, 2—congestion of the lungs, 1—inflammation of the lungs, 3—marasmus, 5—old age, 1—peritonitis, 1—premature birth, 1—sore throat, 1 teething, 3—unknown, 6—whooping cough, 2.

Under 5 years of age, 52—between 5 and 20 years, 11—between 20 and 40 years, 10—between 40 and 60 years, 12—above 60 years, 9. Born in the United States, 72—Ireland, 13—other places, 9.